THE COTTON SITUATION

We had a convention of cotton growers in Raleigh this week for the discussion of matters interesting the cotton grower and for the devising of some plan by which the cotton farmer may realize more for his product. With our Southern love for political economy, the discussion tended mainly towards this aspect of the question, and the idea of some seemed to be that the cotton growers should form a gigantic sort of a trust, to hold and control the sale of the crop so as to furnish it to the market as the demand requires. Then, too, there were those who still are infected with the paternalism that would make the Government organize bonded warehouses for the storage of cotton and the issuing of sub-treasury certificates. What the convention seemed, to the writer, to have entirely overlooked is the responsibility of the individual planter for the existing state of affairs. The inveterate cotton grower looks upon cotton as his only resource for money, and regards everything else that he may be induced to grow simply as "supplies."

Sometime ago one of the city papers cited as a bright example for imitation the fact that "Mr. —had raised corn enough to do him 3 years." The inference seemed to be that it was a wonderful stroke of business on the part of this farmer to grow corn enough in one year to "do him" three years, and that for three years he could therefore devote his entire attention to cotton. What would be thought of a groceryman who boasted that he had bought flour enough to last his sales three years and hence would buy no more flour, no matter what the fluctuation of the market or the depreciation of the flour, or the keeping of his money locked up unproductive? The farmer who raised enough corn to "do him" three years seemed to think that was a fine thing. He did not think that corn had a money value in the market, that it could be at once turned into a more valuable product in the shape of beef or pork, or that he ought to grow more corn every year and not depend on the weevil-eaten corn of the year before until it was worthless. In fact, though the city editor thought this a fine example of business foresight, it was at the botton one of the reasons for the present state of the cotton grower.

Systemless farming lies at the root of the whole evil. Too much land in cotton, too few bales for the acres, too many mules and too few breeding mares thus forcing the cotton crop to buy even the animals that cultivate it and which bring nothing to the farmer but their labor during the crop season The statement was made at this meeting that the average cost of producing cotton was over 6c. per lb. And right here is where that dreadful fellow, the "average" farmer comes in. There are men in this State who are growing cotton for far less per pound, one man even claiming that he grows it for less than 3c. per lb. But the average man is the "cropper." The man who has nothing on earth invested but a mule and a plow and his own labor and that of his family, and is furnished with food and fertilizers by the merchant or landlord who hold a mortgage on his crop, and secure themselves liberally for the investment. A large part of the cotton crop in the South is raised by these men, who produce from one bale to more each season, and in the aggregate make up a total that cuts down the value of that grown by men who have capital invested in farming.

The tenant system of the South is responsible with the credit system for the condition in which the cotton growers find themselves. Men have more land than they can cultivate in cotton, and they rent the extra acres to croppers to grow cotton on, to come in competition with their own crop and swell the general dimensions of the whole. They neither farm in a systematic manner themselves nor require the tenants to farm, but all crop the land in cotton. The land owners are creating of their own accord the competition that breaks down the market. It would be far better for the owner of broad acres to let the surplus land lie idle than to keep up the tenant system now so common, and it would be still better for them to go to farming instead of planting nothing but cotton. With a variety of crops and stock, cash would be coming in at different seasons and business methods could be adopted that are now impossible.

The salvation of the cotton farmer does not rest in legislation. It does not rest in combines to bull the market. It does not rest in visionary sub-treasury schemes. But it does rest in the improvement of Southern lands, in the growing of better crops on less number of acres. It does rest in the carrying on of improved farming all the year through, and the dropping at once and forever of the one crop idea that keeps teams and labor idle part of the year when they might be making money in other ways. It does rest in the feeding of more cattle and hogs, in the making of home cured bacon both for the home and in the market. In brief, it rests in the adoption of good farming with the cotton as the money crop clear of all expenses now charged against it. It rests in making the cropper a permanent farmer, and compelling him to farm instead of merely to grow a crop of cotton that leaves him poorer at the end of the year than he was at the beginning. It rests in getting out of the old ruts, and the abandoning forever the notion that somebody should carry the cotton farmer, but will show him that like all other farmers, he must work out his own salvation. It is with the hope of helping him to a knowledge of how he may do this that we are working. It is for the elevation of the cotton farmer and for his greater prosperity that we have been working these many years. Here and there one sees the light, and starts on a better plan, and with the hope that many more may do so we will keep on in the fight for better methods in Southern agriculture.

W. F. MASSEY.

Wake Co., N. C.

During a recent interview one of the leading authorities on the manufacture of cotton goods in the United States expressed the opinion that the developments of the cotton mill industry in the South are bound to continue; that the advantages in the South are so manifest that they will steadily gain the supremacy over the New England mills. Recent statistics prepared regarding the production and character of gray goods show that South Carolina produces more than New Hampshire or Maine, and is only surpassed by Massachusetts, and that the quality of the goods was as good as any produced.

An analyst has made the discovery that California roses contain 20 per cent. more perfume than those grown elsewhere.

The doll is probably the most antique toy. It has beenfound inside the graves of children in ancient Rome.

SOUTHERN FLOUR MILLS.

One of the most suggestive papers prepared for the Huntsville convention was that of Mr. W. E. Damon, of Nashville, Tenn., on flour-milling in the South. He traced the decline of flour-milling in the fifteen Southern States from the time, two decades ago, when the revolution wrought by the building of roller mills began. At that time there were 5,885 flour mills in the South, representing $60,000,000 of capital. The high price of cotton and the over-shadowing of burr mills by the roller system hastened the decline of the Southern milling business until, it is estimated, it is now represented by 3,000 plants, notwithstanding the fact that the population of the South has, in the meantime, increased more than one-third. Of those mills, not more than 350 are to be found in the nine cotton States. Mr. Damon contends that the South, which is now short on flour and long on cotton, is able, not only to raise all the wheat necessary for its own consumption, but also for export. He says:

"For the encouragement of the Southern farmer I wish to say that the average yield of wheat per acre in the cotton States named is greater than in the great wheat growing States of Illinois and the Dakotas. With approved methods and appliances I feel safe in asserting that no section of this country could surpass the South in this respect. With the magnificent possibilities afforded by the throwing open of the ports of Cuba and Porto Rico to American flour, to say nothing of the prospective opening of the Nicaraguan canal, thereby making a route by which 400,000,000 hungry mouths can be reached in the Orient, the South should be encouraged to a revival of her flour-milling industry. The necessity of feeding her own people is urgent. The opportunity of feeding others is alluring. Nowhere in the United States are there such openings for flour mills as in the South, especially in the cotton-growing States. Already the farmers, tiring of five-cent cotton, are turning their attention to wheat-growing. Georgia farmers are producing forty bushels per acre. South Carolina is holding wheat conventions and will probably quadruple her crop. There is a general awakening all along the line, and some of the Southern States are building flour mills faster than the old wheat-growing States. Not being overcrowded, the opportunities for profitable operation are good."

The facts presented in Mr. Damon's paper are strong arguments in favor of an enlargement of an industry which has for years been more profitable in the South than elsewhere. It will be enlarged as the area devoted to wheat increases in size This area need not encroach upon that devoted to cotton, except, perhaps, in some of the older States, yet it will tend to make cotton more profitable in reducing the cost of its production, and certainly will add to the general wealth of the South. Mr. Damon, for instance, estimates that the cotton States, exclusive of Texas, raises but a trifle more than 8,000,000 bushels of wheat with which to feed a population of 12,000,000 persons, who require the flour from 48,000,000 bushels of wheat. The deficit must be supplied from other States at a cost of about $40,000,000. If this could be saved to the South it would be sufficient return for building flour mills. But other advantages are to be considered. If small mills of from sixty to seventy-five barrels daily capacity should be built until the number in the South is in the same proportion to population as the number was in 1879, there would be nearly 5,000 additional industrial establishments, employing 20,000 persons and contributing to the support of at least three times as many. The proposition has evidently been studied by a few far-sighted men, and they, as well as others who may embark in the enterprise, should be encouraged by an increasing number of wheat-growers.—*Manufacturers' Record.*

SELECT THE SEED NOW.

There is no one thing which, of itself alone, will insure the production of a good crop. But there are some things which are of much more efficiency in securing this result than are others which contribute to the general success. Among the more important items is the selection of good seed. To the host of farmers who grow corn this subject is just now of special interest. For the yield and quality of the corn crop of next year, will depend largely upon the kind of seed that is used, and it is now the time to select the seed. The too common custom of selecting from the crib in Spring involves altogether too much risk. The ears may have been damp when cribbed, have been frozen in the Winter, and their vitality impaired or destroyed. Besides, when chosen in this way the farmer cannot tell anything about the kind of stalk upon which the corn was grown. This is a matter that has never received the attention which it deserves, even when the seed corn was selected at husking time. Good, well filled ears, of fair but not excessive size, which are produced by stalks which are tall, well leaved, but only medium size at the ground, should be chosen. Ears that are ripe comparatively early in season are also preferable to those which mature late, and those from stalks which produce two good ears are better we believe than those from stalks which yield only one ear each. From the double-eared stalks, however, the lower ear is to be preferred for seed. Part of the shucks should be left on the ears saved for seed, though they should be stripped down to the butt of the ear. These ears should be thoroughly dried and then stored where they will be safe from mice and squirrels and from rain. Cold, unless extreme, will not injure the germinating qualities of the seed if it is kept dry. The corn should be left on the cob until it is wanted for use. Even with the best of care it will not be reliable for seed if kept several years. It is best to save seed every year. All this is on the supposition that there is a large field of some given variety to select from, or else that no other kind is grown upon the farm. If several kinds, which ripen at about the same time, are grown near each orher the seed will mix badly and will not be suitable to plant.—*Practical Farmer.*

While it has been known in a general way that the water-powers in the Southern States were being gradually taken hold of and used for manufacturing purposes, yet it will be a surprise to many persons to know that at Columbia, S. C., the largest cotton mill in the South is to be established. The water power will be used to drive dynamos, current from which will be conveyed to the mill to operate the spindles.

Have you tried wide tires? The wider the tires the lighter the draft. Don't save the horses by walking, but ride and let the wagon become tired.

RAILROADS AND RESOURCES.

In an address before the real estate convention of Arkansas, Mr. Alexander C. Hull, secretary of State, set forth an elaborate statement of the possibilities in the zinc region of the State. The address was practical throughout, notably in these concluding sentences:

"Everyone knows that the future success of the Arkansas zinc region depends almost altogether on railroad transportation. That the railroads are going to traverse that country, and that in the very near future, everyone agrees. Then with that enterprise assured, just picture in your minds a country "flowing with milk and honey," figuratively speaking; a country composed of five counties running over with miners and investors, the entire area a veritable mining camp, thousands of men busily engaged in throwing out as many tons daily of $45 zinc ore, to furnish tonnage for the railroads, and large profits to the mine owners and good wages to the laborers, and added to this, consider the great amount of tonnage furnished by the importation of mining machinery of every kind and nature, and supplies for the miners, and the exportation of the varied products of the country, which, in addition to the zinc output, probably consists in a greater variety than that of any other country on the continent. Again, with these conditions, consider that the large area of government lands there insures a double farming population, thousands of new homes inhabited by happy and prosperous farmers, with a corresponding increase of cereal and live-stock productions, the establishment of manufacturing plants and industries, furnishing employment for thousands of mechanics and laborers; new towns and even cities springing up as if by magic; every avenue of trade and business, professional and otherwise, greatly stimulated, property values enhanced, traffic of every kind doubled, yes, quadrupled; in short, a country teeming with wealth and prosperity, the effects of which will permeate every nook and corner of our great State, and you have in a measure an idea of what the future of "Arkansas zinc" means, because it has been left to the zinc product and its present partially developed condition to start the ball in motion that to bring about this transition of activities by reason of the fact that until the vast riches of zinc were discovered the people had despaired of getting railroads, and it is the railroads alone that will make all these other conditions possible."

Supplemental to this speech is one of the typical editorials of the Arkansas *Gazette* of Little Rock urging the prompt raising of a subscription of $100,000 to the railroad which is to connect Little Rock with the mineral resources in the Northern part of the State, in which the sequence is given as follows:

"The millions of tons of fine ore in North Arkansas is waiting for the miner, the miner is waiting for the railroad, the railroad is waiting on the Eastern capitalists, the Eastern capitalists are waiting on the Board of Trade committees, the committees are waiting on the property-owners of Little Rock."

The two utterances are strong pleas for the construction of a single railroad line. Their chief significance, however, appears in their demonstration of the connection of railroad construction generally with the development of the natural resources of the South, and of a feeling friendly to such undertakings. Without railrobds in this day of close competition and of sharp economics in industrial operations, the railroad is an absolute essential to development of natural resources. The iron, the coal, the lime stone of Alabama and Virginia, the phosphate rock of Florida, South Carolina and Tennessee, the oil of West Virginia and Texas, the marble of Georgia have been in the ground for ages. The timber has stood in Texas, Louisiana, Mississippi and the Atlantic coast States for many years, increasing annually in potential value. They all would be today as nothing comparatively were it not for the railroads. As these have advanced they have created industrial values, and as industrial values have been developed agriculture has been given the opportunities for improvement. Manufactures and agriculture have helped the railroads, but to a greater degree have the railroads helped agriculture and manufactures. And all three influences are working together for the good of the South as it prepares to find new and wider markets for its products.

The drum fish is a huge game fish very plentiful along the Cuban coast. Its limit is about 250 pounds, and should an experienced angler get one of these jumbos at the other end of his line he had better let go or cut loose, for it requires a skillful hand to play the drum, who generally pulls like a cart horse and is as stubborn as a mule. A 10-year-old Cuban lad was snatched overboard by a hundred-pound drum a short while ago and the father only saved the child's life by instantly plunging overboard, and with a quick stroke of a knife, severing the line which had become entangled around the little one's waist. Drum fish in that latitude average from sixty to two hundred and forty or fifty pounds in weight, and run in such enormous schools that their noise at night, when coasting along the shore, is distinctly heard on land. Their scales are used for the manufacture of buttons.

A Canadian inventor from Toronto, who evidently believes that nature's methods are the most perfect to secure any given end, has patented a covering for vessels which it is expected will revolutionize the maritime industry, and particularly the construction of yachts and other speedy craft. This consists of a disposition of the material so as to conform, as nearly as possible, to the scales of a fish. Many of the mechanical and engineering problems of the day are found to have been solved long ago by nature, but even so this proposition to follow nature and cover a ship with scales is rather startling, to say the least. The inventor claims that great speed may be obtained by following this construction, which consist essentially in covering the hull with small plates of any suitable material, arranged like shingles so as to overlap each other.

The assessor's returns for this year to the Board of Agriculture reveal much expansion sentiment as to the sowing of alfalfa in Kansas. The number of acres reported for the year ending March 1st is 278,477, a net increase of 46,929 acres or 20 per cent over last year. Every county in the state except Haskell and Stevens report an acreage. The widespread interest taken in this wonderful crop by growers of all kinds of livestock is indicated by the fact that the area has increased from 34,384 acres in 1891 to 278,477 in 1899, making a total gain of 244,093 acres, or 709 per cent.

GEORGIA'S FIRST COTTON FACTORY.

It is not generally known that Wilkes County was the scene of the first cotton factory in Georgia. Rev. Frank T. Simpson, furnishes the following article on this subject:

"An article has been going the rounds of the newspapers, in which it was stated that the first cotton factory in Georgia was built near Athens, on the Oconee river, in the year 1827. It is a well established fact, however, that Georgia's first cotton factory was built in 1811, on Upton creek, nine miles southeast of Washington, in Wilkes County. It was here the Barnetts, attracted by the fine water power, soon after the Revolution, built a grist mill. In the year 1791, the mill was burned, and the family moved to Columbia County. Two years after Mr. Miller, who married Mrs. Green, of Savannah, and was a copartner of Whitney, the inventor of the cotton gin, purchased the mill site and lands adjoining, and put in operation a gin. This wonderful machine attracted visitors from far and near but only ladies were allowed to see it in operation,as a patent had not been granted. It is said that a Mr. Lyon dressed himself in his wife's clothes, and got the secret, and being a skilled workman, made the saw gin, a great improvement on the Whitney gin, which used wire teeth in separating the lint from the seed.

"The house in which the gin was operated was bought by Thomas Talbot and used as his kitchen while he lived. A few rods from where stood the gin was built the factory. The stockholders were Bolling, Anthony, Capt. Simons, the Talbots and Bolton, the latter also being the architect. The foundations of the house are still to be seen. It was built of stone quarried from the adjacent hills. Over each door and window was a slab of grey rock, which contrasted with the brown stone of the walls, made it quite an attractive building. It was sixty feet in length, by fifty feet in width, having two stories with a basement and attic. It was entered by a door leading into an anteroom, about ten feet wide, from which the main room on the first floor was entered, and in which were stairs which led up to the upper floor and attic. The walls were neatly plastered and the glass windows were protected by strong shutters filled with nails. Over the front door was inserted in the wall a large stone with the letters 'Bolton,' the name of the architect, but in circular form, with the figures, 1811 beneath.

"The hinges, hooks, nails, etc., were all wrought in the smithies in the the neighborhood, Billy McFerrin, an Irishman, being the head smith. He lived to a good old age, and for some years before his death he was paralyzed, but managed to walk with crutches. Homeless and poor, he was cared for by Thomas Talbot, at whose house he died.

"The factory did not prove to be a paying investment, and after being operated a few years was closed. The machinery was sold to Thomas Talbot, who started a small factory on his own plantation to furnish clothing for the numerous slaves.

"The factory building wos unused for years, except occasionally for preaching by the Baptists, who had no church in the neighborhood, and by Esquire Richardson Booker, who here taught for many years a Sabbath school.

"In 1834 William Simpson bought the property from the estate of General Green, and put in the house a corn and wheat mill. In September, 1841, an unprecedented rise in the creek caused the wall next the stream to fall. The next year the timbers and stone were used in erecting a fine flouring mill. The stone with Bolton's name cut in it is in the possession of the writer."

BEST WHEAT FOR THE SOUTH.

For a number of years the Agricultural Department has been investigating the grain rusts, which cause so much loss and are so very widely distributed. Experiments have been made with a view to prevention and to determining what varieties most resist the disease and also whether varieties not resistant in some localities may not be resistant in others. These investigations have been conducted in nearly every State in the Union with the result that much valuable information has been obtained.

The department finds that the stem rusts are more prevalent in the West, and the leaf and crown rusts in the East and South. It recommends the following varieties to Western growers: Turkey, Mennondite, Odessa, Rieti, Pringle's No 5, and Pringle's Defiance, and for early spring sowing Hayne's Blue Stem and Saskatchewan Fife. The following resist leaf rust: Theiss, Fulcaster, Oregon Club, Deitz Longberry, Sonora, Diehl Mediterranean, Arnolus Hybrid and Calif Spring. Durum and poulard wheats, used mostly for maccaroni, are also very resistant. Eikorn, used for feed. seems absolutely resistant. Nearly any variety may rust if sown too late.

There are six different species of rusts and the damage they do every year exceeds, in the department's opinion, that of any other pest, and in some localities those of all other pests combined.

In the Carolinas wheat is quite commonly injured by rust, but it is not grown extensively in those States. The orange leaf rust seems to be the prevailing species, though as yet it is uncertain whether it is the only one present in cases of severe injury. One peculiar fact of interest is that early wheat, such as early May, is also more injured than late varieties, which is just the reverse of the rule. A probable reason for this is that early wheat is sometimes weakened by frosts or freezes, and is thus rendered more liable to rust. In the Atlantic coast States the wild blackberry rust is extremely abundant, especially in the edges of clearings near fields of wheat—a fact which has given rise to the erroneous opinion that this rust has some ontogenetic connection with the cereal rusts.

Very little wheat is raised in Georgia, but usually what is grown is badly injured by rust. Leaf rust is the species most prevalent, but frequently the grain is not severely injured until the stem rust appears. In Georgia and in all the Gulf States oats is seldom injured by rust. The variety of oats most commonly grown is the Texas rust proof.

The division of forestry at the Department of Agriculture at the present time has sixteen men in the State of Washington gathering data regarding the growth of red fir and how best to keep the land in a productive condition. Fir is a rapidly growing timber, and Gifford Pinchot, chief of the division, believes that with proper care there should be a perpetual supply, which should maintain Washington as a great lumber-producing State in perpetuity.

A GREAT HARDWOOD COUNTRY.

Western North Carolina is probably one of the richest hardwood timber sections in the United States. The average altitude of the plateau section is about 2,200 feet, and from its top and slopes rise the mountains attaining as great a height as 6,700 feet. On the eastern slopes of the Blue Ridge and in the adjacent territory the famous "short leaf" or "North Carolina Pine" grows in abundance. Interspersed are to be found the various varieties of oak, together with the poplar, hickory and other woods common to this section. Upon the plateau and the adjacent mountains grow the virgin forests of poplar, oak, ash, chestnut, hickory, birch, beech, linden, buckeye, maple, walnut, cherry, white pine, hemlock and balsam, and among the smaller timbers dogwood, holly and persimmon.

The best and largest growth of timber is to be found in the north coves of the mountains and in the river bottoms. The tops are not so heavily timbered as the slopes and neither does the timber grow so prime and large. It is estimated by lumbermen familiar with the section that the average amount of merchantable timber per acre of ordinary timber land is about 5,000 feet. This includes such stock as can be cut and handled by portable mills. On lands that can be operated by means of water-courses the amount of timber which can be taken off an acre and handled at a profit is much larger. Good timber lands can be bought all the way from $2 to $5 an acre. Stumpage at a distance from the railroad can be bought at $1.50 a thousand. The poplar of this section finds ready sale in Northern markets. The varieties of oak include white, chestnut and red oak and are particularly adapted to the export trade. The other woods mentioned, while not so plentiful, constitute a considerable portion of the hardwood industry. A very feasible way of handling the timber is by portable mills of from fifteen to thirty horse-power, and with capacities of from six to twelve and fifteen thousand feet a day. Large boundaries are operated in this way at a profit.

The opportunities offered investors to put money into tracts of standing timber are many, and there are for sale tracts all the way from one hundred acres to forty and fifty thousand acres on which a tree has never been cut. These tracts can be bought at prices before mentioned and on terms very reasonable. There is hardly a better investment for idle capital than timber land in a section where there is no danger of forest fires destroying the growing trees.

Mr. George Vanderbilt a few years ago purchased a tract of eighty thousand acres of the finest timber land to be found anywhere in this section, and while he no doubt contemplates manufacturing a large portion of the timber, he has expert foresters now on the property and is giving every attention to the care of the trees and the growing of new ones, besides having converted the property into a vast game preserve.

The freight rates compare favorably with those from other points where similar timber is to be had. The Southern Railway makes through rates to points North or South. New York and Boston can be reached by rail and water as well as by all rail. Foreign shipments are consigned via Norfolk or Baltimore. Many large tracts have been purchased within the last few years and a considerable development in the timber industry is going on, including furniture factories, stave factories, planing mills, and nearly all kinds of wood-working concerns.

The tanbark obtained in this region has been a very attractive feature in bringing several large tanneries into western North Carolina.—*Southern Field.*

SIX HUNDRED DOLLARS FROM AN ACRE OF LAND.

At a recent meeting of the Georgia State Agricultural Society, Mr. F. J. Merriam, who runs a hillside farm near Atlanta, Ga., in the course of an interesting talk made the following statement:

"If a man will but study his ground, he will find it to be fully as entrancing as the study of books. Through marriage I became connected with a small farm. With my brother-in-law I broke ground in 1893 to meet the market demands in Atlanta. That year I made only $500, but the $115 which I received from 250 hills of cucumbers convinced me that I was on the right track. The next year my sales went up to 1,934.29. I got $500 from one acre which I had planted in potatoes. The next year, 1895, I marketed $3,329 worth of vegetables. This year I found lettuce to be the best seller, getting $791,40 on that article. It was in 1896, however, that I struck luck and gained the final conviction that there is money in the land when the farmer studies his surroundings. In that year I sold $5,068 worth of stuff, of which $764.60 came from lettuce, $583 from turnip salad and $404.00 from beets. I keep books strictly, and find that it costs me exactly one-third of what I raise to pay the necessary expense, including repairs. In 1897 prices were low and the more ordinary vegetables were in demand, but even under this stringency I made $4,738.60. Of this, $529.55 came from three acres planted in tomatoes, $398.90 from beans and $329.55 from turnips. In 1898 found the market still depressed, but I made that year $4,794.20, of which $732.90 came from turnip salad and $561 from collards. This year, notwithstanding the very bad season we had in the spring months, up to the 1st of August I have sold $4,138.55 worth, $600 of which came from one acre planted in cabbage, and I intend to pocket a round $10,000 this year out of my little farm.

"Georgia soil under a system of deep plowing and thorough tillage will produce fine crops. Our red clay subsoils are rich in plant food. The Georgia "Cropper' has been plowing for years down to what he called 'the hard', and this same hard subsoil has been absorbing all these years the plant food from the thin layers of cultivated ground as it was packed down by the heavy rains, until to-day it is ready by the magic of modern improved farming to yield up its riches in crops that will astonish the civilized world. We have striking examples of this in the farms scattered here and there over the State, which appear like oases in the desert of surrounding barrenness. Farms where thrift is the order of the day, and the owner looks personally after every detail, are object lessons of what we may expect when the community at large becomes better educated in modern farm methods. And the fact that these successful men are still progressing, that their crops are growing larger, their land richer and their net profit at the close of the year shows a corresponding increase, goes to prove that no limit can be placed upon the productiveness of our soil and the wealth and prosperity, as an agricultural community, that we may finally aspire to."

FARM FIELD AND GARDEN

FARM FORESTRY.

Tree Planting In the Northeast, the West and the Pine Belts.

Wherever the planter has chosen his trees with intelligence and so succeeded in producing a useful plantation, there has been the real spirit of forestry.

In the spruce lands of the northeast, for example, many lumbermen have come to see that by leaving the small trees standing they can return for a second crop earlier than would otherwise be possible and that this plan pays. In many cases they are leaving the spruce which measures less than 10 inches in diameter and in others that which measures less than 12 inches, because the trees under these sizes can be harvested with greater profit if they are left a few years to gain a larger growth. Similar work has been done in other sections of the United States, as, for instance, in the southern pine belt, where repeated crops of long leaf pine have been cut from the same tract.

By far the greater amount of such work has, however, been done by farmers and other owners of small tracts of woodland. Very many farmers have made a practice of thinning their wood lots with care, first removing the dead, dying or unpromising trees and then letting the remainder stand in order to utilize the growth of the trees and to obtain continually from the wood lot firewood and other material for the farm and occasionally a crop of larger trees for the market. Other farmers, again, devote a number of acres to the production of hard wood sprouts for fuel. They cut over the land every 25 or 30 years and calculate that from one-half to one cord of wood is produced annually by this system of forestry.

Tree planting on waste places on the farm is yet another kind of forestry which has been practiced. Work of this character is now widespread, and much of it has been accomplished. In New England there are numerous instances of planting white pine on waste places with excellent results, and in Massachusetts the planting of larch has proved highly satisfactory. Many farmers have found it profitable to plant locust and red cedar for fence posts, and in more than one case the cultivation of black walnut has brought large returns. In the central west the fast growing catalpa and the ailanthus have produced remarkable results in short periods in the hands of private growers.

A distinct branch of tree planting is practiced in the treeless states of the west. There, in addition to the uses to which their wood is put, trees have proved of great value in the form of windbreaks. In these cases the best results have generally been obtained from the osage orange, catalpa, maple, elm, box elder, Norway spruce, Scotch pine and others, according to differing local conditions.

There is yet another use to which tree planting has been put. Along the banks of streams trees have been set to fix the fast eroding soil and to prevent the increasing floods, and on cultivated hillsides which have begun to gully from the washing of rain trees have been made to do good service in checking the excessive surface drainage and saving the fertile soil.

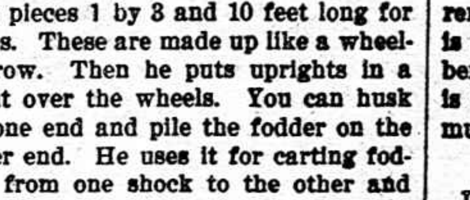
The protection of woodlands from fire forms one of the most important branches of forestry which have been practiced in the United States. Indeed, without such protection any efforts to cut the timber with a view to reproduction or to plant new forests are useless. Various measures to guard against forest fires have been adopted in different localities. For example, in the Atlantic pine belt many forest owners burn off the upper layer of leaves and needles in the early spring in order to prevent the spread of fire later in the season.

In Michigan, lumbermen have endeavored to lessen the danger from fire by lopping and burning the brush left after lumbering. The cutting of fire strips along railroads, and even within the forest itself, has been used as a precaution against fires. But a common and a very effective way to guard against fire is careful watching. Many large owners of forest land employ a number of men as a fire patrol, and often an extra crew of watchers is hired during the dangerously dry seasons. In the same way many lumber companies which own logging railroads employ a man to follow the trains and put out any fires that may be started.

The foregoing is extracted from a circular by Gifford Pinchot, forester of the United States department of agriculture. The yearbook of 1899 will consist of a resume of the achievements of this country in every branch of science relating to agriculture and will be prepared with a view to its special distribution at the Paris exposition. The division of forestry will contribute a short history of forestry in the United States and also an account of the efforts of private landowners to apply the principles of forestry. An impression widely prevails abroad that little or nothing has been done in the United States in the way of forestry. This impression, Mr. Pinchot thinks, the yearbook ought to remove, and, in seeking information regarding such forest work as has been described, he earnestly invites correspondence from those who have done any work along the lines of forestry.

A Handy Device.

In making a husking horse an Ohio Farmer correspondent employs a pair of old wheels of convenient size, an



FOR HUSKING AND FODDER CARTING.

axle of gas pipe the desired length and two pieces 1 by 3 and 10 feet long for sides. These are made up like a wheelbarrow. Then he puts uprights in a slant over the wheels. You can husk on one end and pile the fodder on the other end. He uses it for carting fodder from one shock to the other and has hauled five shocks at once on it. It is very handy in winter, when feeding when the ground is frozen, to wheel fodder or straw on.

Shape of Pork Barrels.

It is about this time of the year that the pork barrel begins to give trouble, because the pork rises to the surface and can no longer be covered by the brine. Why does pork rise late in the season? An old farmer many years ago explained the reason. The pork barrel is made the same shape as any other barrel—that is, with its sides bulging in the middle and smaller above and below. The proper shape for any barrel to hold pork or beef is with straight staves and smaller at the top than at the bottom. It is somewhat harder to reach down into such a barrel to get out a piece of meat, but the pork will keep as good as at first until the last layer is reached. That should be kept down by putting a cover on it as large as can be squeezed through the top and weighting it to the bottom layer with heavy stones.—Boston Cultivator.

HAIRY VETCH.

What the Alabama Station Thinks of It For Winter Pasturage, Etc.

Hairy vetch (Vicia villosa), sown in September or October, alone or with oats, affords nutritious pasturage during the following February, March, April and May. If not grazed too late, it affords a cutting of hay from April 20 to May 10. Hairy vetch is disposed of as pasturage, hay or green manure in time for quick growing summer crops, such as cowpeas, sorghum, late corn, etc. It grows only from seed, but can be so managed as to reseed the ground continuously.

At the station hairy vetch was cut for hay at four different stages. The yield of hay increased up to the time of full bloom, when the maximum yield of 5,789 pounds of hay per acre was obtained. Chemical analysis showed that, at whatever stage this plant was cut, the hay was nutritious. Considering both quality and quantity of hay, it was concluded that the best time to cut vetch, growing alone, was three or four days before the period of full bloom.

Hairy vetch rapidly enriches the soil in nitrogen if the plant is plowed in for green manure. It is able to draw this nitrogen from the air and add it to the soil only when the roots of the vetch plant are supplied with enlargements of definite character, known as root nodules or tubercles.

When sown in the usual way on most poor soils in Alabama, the vetch plant does not have these "bumps" or nodules on the roots. If devoid of tubercles, hairy vetch does not enrich the soil and fails completely if the land is poor.

Such soils can be made to produce vetch plants containing tubercles by sowing, along with the vetch seed, some of the earth from a place where the English pea or the wild vetch has been grown for several years.

The process of employing suitable soil or other material containing definite kinds of tubercle producing germs is called inoculation.

In order to have available for use in future years a sufficient supply of valuable inoculation material, it is important that prospective vetch growers should sow at least a small area of vetch this fall. The soil from this plot may be used for inoculating larger areas in subsequent years.

Hairy vetch can be advantageously introduced as a "catch crop" into the ordinary rotation of the cotton farm without reducing the area of cotton, corn or small grain.

Forcing Rhubarb In the Cellar.

Horticulturist Fred W. Card of the Rhode Island station, in summing up his experience in forcing rhubarb, expresses a desire to impress upon every one who has a garden with rhubarb in it the fact that he and his family may be enjoying in February and March of next year a more beautiful product than ever grows in the open ground. To do it he will need to transfer a few roots to a dark corner of the

A CORNER IN RHUBARB.

cellar after they have frozen in the fall, packing a little fine mellow earth about them, and then simply see that the plants are kept moist. Whoever owns a garden with no rhubarb in it should see that some is planted there forthwith.

A warm cellar will hasten the crop, but a moderately cool one will give a finer product and probably a better yield. The length of time between planting and harvesting varies from less than three weeks to more than two months, depending chiefly upon the temperature. Allowing the roots to freeze in the field will greatly facilitate forcing. Large roots should yield five to ten pounds per plant, and every ten ounces of that yield will make a delicious pie. The color of the cooked product will be much brighter if it is placed upon the stove in cold water, and it will be sweeter if the sugar is added just before it is eaten.

Failures With Crimson Clover.

Many of the failures with crimson clover are due to use of old seed, which is sold at a low price. This is discolored and will show poorer germination than fresh seed and produce weaker plants. Even fresh seed may, however, be of poor quality. The seed of crimson clover is not easy to harvest. The plants require to be cut when the seed is hard and ripe but not yet loosened from the plant. If wet weather follows cutting or if the seed is not properly dried, it becomes discolored and may begin to sprout. If it is then dried and germination is checked, the vitality of the seed may be seriously injured. It is, therefore, never enough to say that a given sample is fresh.

Valuable For Early Grazing.

Bur clover has been extensively introduced and is a valuable pasture plant for early grazing in the south. It is eaten well by cattle and sheep and occasionally by horses and mules; is of little value for hay.

Seed should be sown in October on rich loamy soil, and the plant will make good grazing by February or March. The seed matures in April or May, after which the ground may be plowed and cultivated in other crops during summer. The clover seed will remain in the ground and, if the field is cleared of its summer crop by October, no reseeding will be required. It is an excellent plant to mix with Bermuda grass.

To Keep Sweet Potatoes.

Dig, if possible, when the ground is dry, put in hills or banks not exceeding 30 bushels; put a ventilating tube in the center of the hill and cover very lightly until the weather becomes quite old. Protect the hill from sunshine. When really cold weather sets in cover with cornstalks and pine straw to a thickness of eight or ten inches, with a layer of dirt on them, increasing the thickness of said layer as the winter advances. Leave the ventilating tube open until the weather is very cold, then close it, but open again during mild weather. Keep the hill in the shade all the time.

WINTERING BEES.

Food and a Free Passage Over the Combs—Where to Keep the Hives.

"In preparing colonies for wintering the beekeeper should bear in mind that a swarm ought to be confined to a limited number of combs. The necessary amount of food should be contained in six or eight combs, and in some localities even five or six would be sufficient. Several cases were reported to me of bees that had at least 20 pounds of honey in the hive having perished during the blizzard of the past winter, but the bees were clustered at one side of the hive (a ten frame Langstroth) and the honey was on the other, and the cold was so intense that they were unable to reach it and so starved to death. Again, it should be borne in mind that bees have a habit of filling combs nearly full of pollen and putting a little honey on top before sealing it over. Thus the beekeeper is often deceived as to the amount of honey contained in the hive, and the bees perish before spring for want of honey."

A writer who gives this advice in American Gardening further tells that a winter passage over the combs is important in successful wintering. In whatever covering is used on top of the frames be sure to arrange to have a free passage for the bees over the comb. The beekeeper himself can make a little device with old barrel hoops for holding up the quilts or cushions above the combs so as to permit the bees to pass freely over. The writer says:

In localities where the winters are long and severe many beekeepers practice cellar wintering, where a proper and even temperature can be maintained, along with dry, pure air, all of which are very essential to insure success. Ample ventilation must be provided for and should be so arranged as to be controlled from the outside. All light should be excluded, and perfect quiet is very important.

The cellar should be secure from the depredations of rats or mice; in fact, everything that can annoy the bees in any way must be guarded against. The visits to the room in which the bees are kept should be at rare intervals; an occasional examination, of course, should be made to see that they are all right, but if in proper condition when put in the cellar the less they are disturbed the better. Just when to put them in is somewhat difficult to determine and depends both upon the season and the locality. Many prefer to let them stay out until November, or as late as they can have a cleansing flight. When ready to put them in choose a cool day and avoid all shaking or jarring of the hives.

In many of the middle and southern states bees will winter just as well if left upon their summer stands. Very few, if any, beekeepers in the vicinity of Philadelphia practice cellar wintering, as there are usually one or more warm days during each month of winter when the bees can have a good fly. Such being the case, if the colony has plenty of food, plenty of young bees, and a good, vigorous queen, and are well packed in chaff hives, or with an outer case about the hive with the space between filled with chaff, leaves, sawdust, etc., the beekeeper can rest assured that they will come out strong and vigorous in the spring.

A Good Use For Vegetables and Poor Fruit.

Every farmer understands the fact that the best time to fatten hogs is early in the fall, while the weather is still warm and while there is great abundance of succulent food to be fed with grain. If vegetables and unsalable fruit are cooked and mixed with meal or grain cooked at the same time, they will keep the young hogs thrifty until the time comes with cold weather to top off with corn. It is well to cook some wheat middlings with this food, as the middlings will encourage growth, which for young hogs is quite as important as to fatten them, says Massachusetts Ploughman.

Rhubarb Roots For Forcing.

In regard to whether rhubarb roots are better for forcing after having been frozen, one grower says that roots taken from open ground in fall before frost will take several weeks longer to have rhubarb fit to pull. In the fall he digs the roots intended for forcing and puts them in an old shed, covering slightly to prevent drying out. Roots taken from these, not frozen, and put in the forcing house will be five weeks before stalks are fit to pull, yet if hard frozen when put in the forcing house they will be ready to pull in three weeks.

Permanent and Profitable.

Not only is stock farming the most profitable system of agriculture in all civilized countries, but it is the most permanent, says Farm and Ranch. Nowhere has it ever been adopted and abandoned. We have heard the opinion expressed that land is becoming too dear for raising cattle or hogs or sheep. This is a broad, flat mistake. The richer the land the better it is adapted to the feeding and developing of live stock. No one will dispute this proposition. As the productiveness of land, other things being equal, regulates the price, it will be seen that the dearer the land the better for raising stock, as a general rule. Beef, pork, mutton and dairy products are profitably produced in the older states and in Europe on lands worth from $100 to $800 per acre. The most valuable farming lands in the world are the stock farms of this country and Europe, because the fertility is maintained and even improved, and the intelligent labor and thought required to make stock farming successful are reflected on every feature of farm life, and the civilizing influences cluster around it, and the comforts and luxuries of life are made to abound. Texas farmers alone should market 1,000,000 fat cattle, 6,000,000 fat hogs and mutton sheep by the square acre. It can be done, and in course of time we expect to see these figures exceeded. Then will prosperity take up her abode on the farm.

Horses In Large Cities.

The great cities of the world use up an enormous number of horses every year, and these must constantly be resupplied by horses from the country or from foreign parts. It is stated that in the suburbs of London alone there are 750,000 horses in use and that 100,000 horses must every year be sent into these suburbs to take the place of those worn out. The city of Berlin takes 100,000 new horses every year. A large number of the horses used in omnibuses and on tram lines both in England and on the continent are imported from the United States. The horses from the United States are shipped from the ports of New York and Boston to the ports of London, Liverpool and Glasgow, and quite a large number are transhipped at London for the ports of Antwerp and Havre. The ocean rates on horses from New York and Boston are from £5 to £6 per head, including feed and attendance, insurance for the voyage and for ten days after landing and dock charges.—Household Words.